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USSR–Current Status of the 1977 Grain Crop

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Environment and Resource
Analysis Brief

USSR–Current Status of the 1977 Grain Crop

Summary

As of 5 July, we estimate total Soviet grain production at 225 million tons—the same as the current US Department of Agriculture (USDA) projection. This is slightly above last year's record harvest. Wheat production is expected to reach 107 million tons, second only to the 1973 output. USDA puts the wheat harvest at 110 million tons.

Excessive moisture in European USSR has caused harvesting difficulties in several parts of the winter grain area, jeopardizing the bread-making quality of the winter wheat crop.

With 95 percent of the total grain crop yet unharvested and with about two-thirds of the spring grain prior to early-ripening, final outturn is far from certain. Prevailing weather and crop conditions from now through late harvesting in September will have a major impact on the size and quality of the crop.

Note: This paper was produced by the Office of Geographic and Cartographic Research and coordinated with the Office of Economic Research. Comments and questions may be directed to [redacted] Code 143, Extension 3748. Date of information 5 July 1977. 25X1A

Total Grain Production

Prospects continue to be good for a second consecutive bumper Soviet grain harvest. We currently project total production at 225 million tons, slightly above last year's record output. (See Chart) We expect wheat to reach about 107 million tons, second only to the 110 million tons produced in 1973; barley output will also be well above average. Only corn will fall below the average production of recent years.

In the midst of an excellent winter grain harvest, the key to achieving a new record requires maintaining adequate soil moisture levels in the drought-prone spring grain area, especially in the spring wheat belt of Kazakhstan and West Siberia. (See Map 1) The short range weather forecast indicates a stationary weather system that will provide adequate rainfall in most of the spring grain area through mid-July.

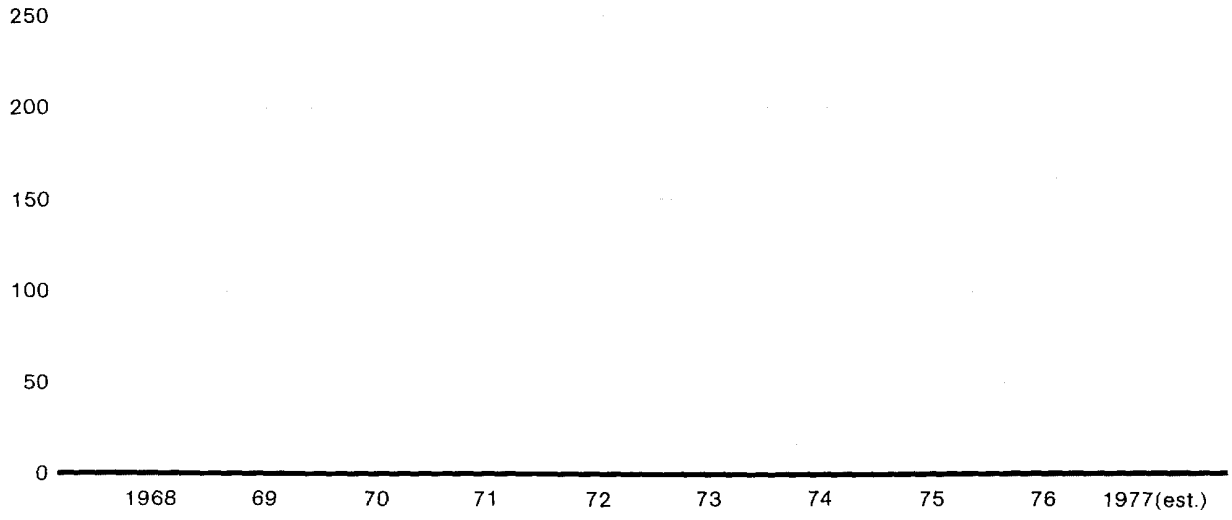
Weather conditions from now till September will largely determine the size and quality of this year's grain harvest. As of 1 July, less than 5 percent of the total grain crop had been harvested and some two-thirds of the spring grains had not ripened.

Status of the Winter Grains

The 1977 winter grain crop will be about 8½ million tons greater than the previous record and underpins prospects for a bumper total grain harvest. As of early July, we estimate output of winter grains at 72 million tons—some 2 million tons higher than our initial projection in late May.[1] The upward revision reflects slightly better yields from both the winter rye and winter barley, crops that account for about ⅓ of the harvested winter grain acreage. This year's production marks a sharp improvement over output of winter grains in 1976. Of the total winter grain harvest, we expect winter wheat to account for at least 57 million tons, compared with 45 million tons last year. (See Table 1)

[1] See *USSR—Current Status of 1977 Grain Crops*, 27 May 1977, GC AB 77-002. S.

USSR: Total Grain Production



USSR: Major Spring and Winter Grain Area

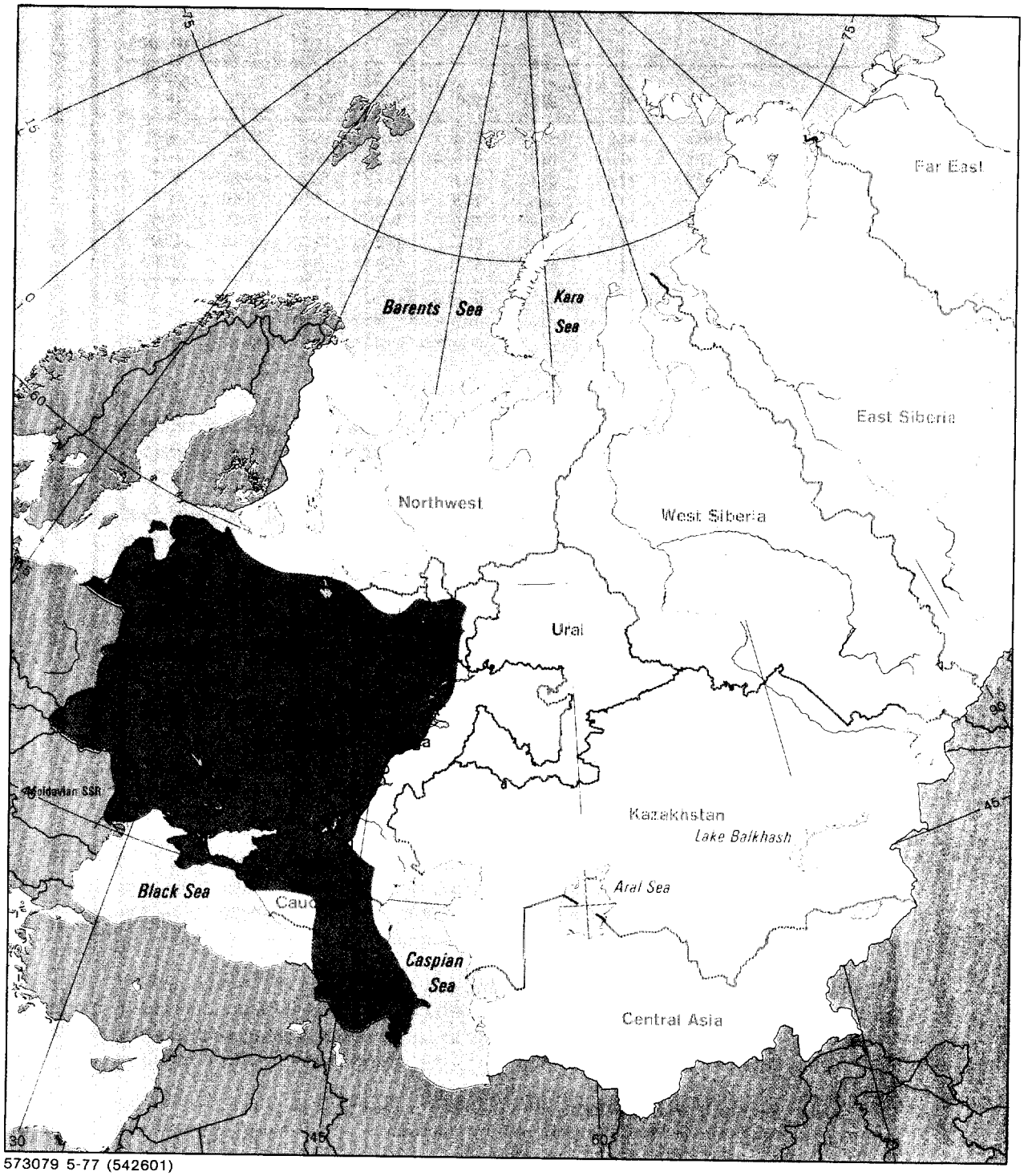


Table 1

USSR: Grain Production [1]

Million tons

	1970	1971	1972	1973	1974	1975	1976	Estimate 1977
TOTAL	186.8	181.2	168.2	222.5	195.6	140.1	223.8	225
Winter Grains [2]	57.5	63.0	40.6	63.5	62.5	48.6	60.9	72
Wheat	42.2	47.8	29.4	49.4	44.7	36.6	44.6	57
Rye	13.0	12.8	9.6	10.8	15.2	9.0	14.0	13
Spring Grains [3]	129.3	118.2	127.6	159.0	133.1	91.2	162.9	153
Wheat	57.4	51.1	56.6	60.5	39.2	29.5	52.3	50
Barley	35.8	32.3	35.1	51.7	51.6	32.8	67.1	60

[1] Because of rounding, components may not add to totals shown.

[2] In addition to winter wheat and rye, winter grains include winter barley.

[3] In addition to spring wheat and barley, spring grains include oats, corn for grain, pulses, millet, rice, and buckwheat.

In the fall of 1976, winter grains—wheat, rye, and barley—were sown on 38½ million hectares, the largest sown area since 1968 and about 1 million hectares greater than the previous fall.

Most of the winter grains went into dormancy in very good condition; soil moisture reserves were uniformally excellent. Published Soviet accounts indicate that winterkill was light except in parts of the Non-Chernozem Zone and North Caucasus. Areas sown to rye and barley suffered the most damage. Imagery revealed only slight damage to winter wheat in the Ukraine. We expect that 83 percent of the winter grain acreage will be harvested this year, compared with the ten-year average of less than 80 percent.

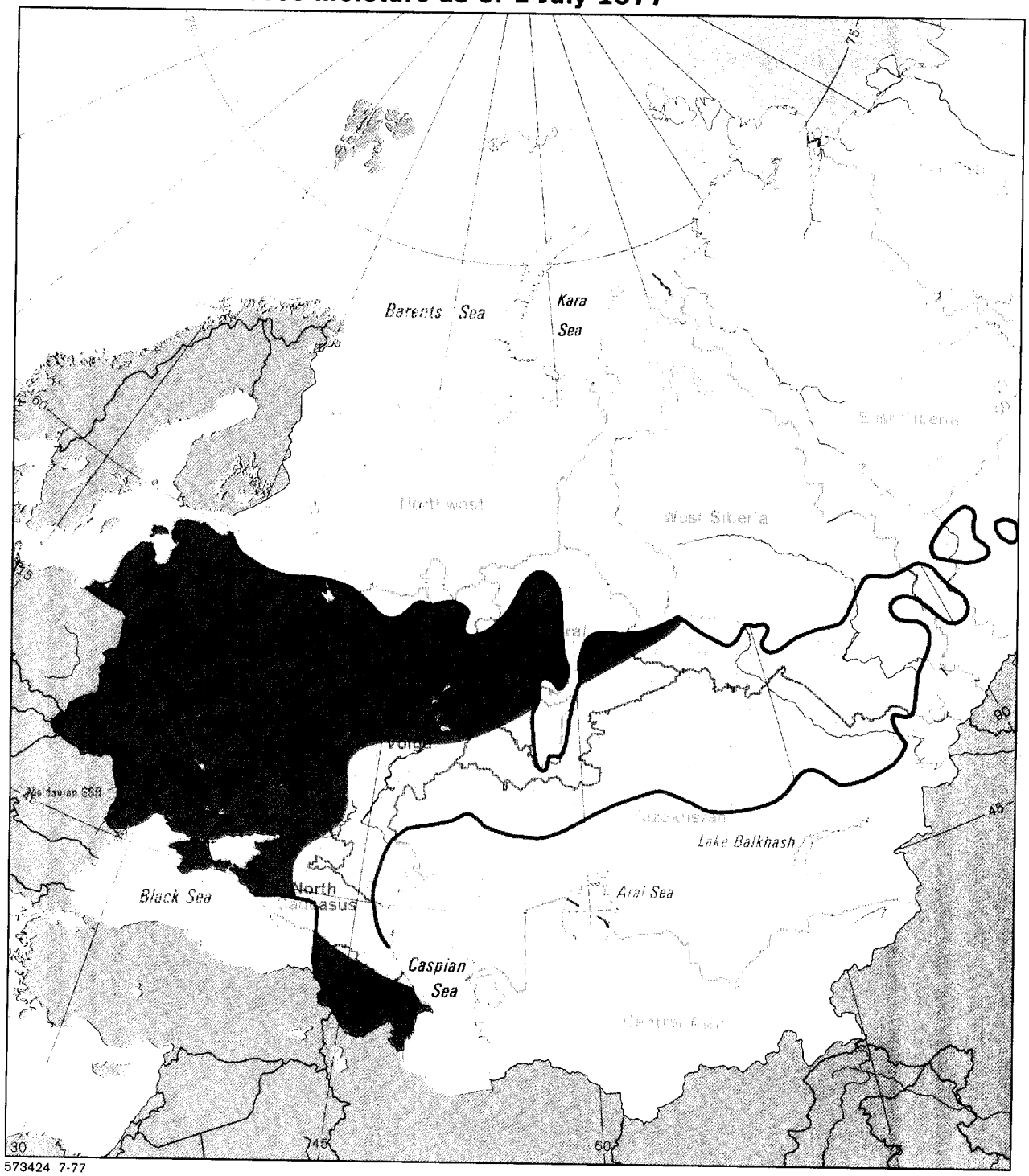
Harvesting, which began in late June in the southern region around the Black Sea, is especially difficult this year because of heavy June rainfall. (See Map 2) The U.S. Department of Agriculture (USDA) winter grain team reported extensive lodging in the eastern Ukraine. A Soviet official confirms that 80% of the combines were adjusted for harvesting flattened crops.[2]

Wet conditions are also delaying mechanized field operations, such as haymaking, and in turn, these operations are overlapping the early wheat harvest in parts of the North Caucasus. Heavy weed growth—another consequence of the excessive rainfall—will add to harvesting difficulties.

Unless a drying trend develops by mid-July, the milling and bread-making quality of winter wheat will be substantially reduced by excess moisture and heavy mildew. Although Soviet grain drying capacity has expanded in recent years, facilities will face a stiff test in coping with this year's crop. Storing grain with a moisture

[2] Lodging describes a condition resulting when, because of rain and wind, grain stalks bend or break and form a flattened or tangled mass that is difficult to harvest. It generally occurs during the later stages of crop development—when the grains are tallest and weighted down with mature heads—and when plant growth has been especially lush. The extent of the losses associated with lodging depends partly on the stage of the plants' development when lodging occurs, the type of harvesting method employed, and weather conditions during harvesting. Production losses due to post-maturity lodging are minimized in the USSR by the use of hand harvesting.

USSR: Area of Excess Moisture as of 1 July 1977



content exceeding 16% will usually result in molding. Flour from such grain is unsuitable for bread-making because the elastic properties of the gluten have deteriorated.

Status of Spring Grains

Spring grain production is now estimated at 153 million tons, 10 million tons lower than last year's record harvest but still the third largest spring crop ever. Overall, prospects for higher yields are somewhat better than in 1976, however, due to a 3 to 4 percent reduction in the spring sown area, the likelihood of back-to-back record outputs is remote. Most of the decline in spring grain is at the expense of corn and barley, becoming particularly evident at the oblast level in both the Ukraine and North Caucasus. (See Table 2) Barley acreage in the Ukraine is about 40% below last year's seeding and substantially lower compared with the recent trend.

Table 2

USSR: Barley Area

	Million hectares
1972	27.2
1973	29.4
1974	31.1
1975	32.5
1976	34.3
1977	32 est.

Spring sowing began near the usual time in both European USSR and the main spring wheat belt east of the Urals. Because of restricted fall plowing, officials expected some early delays which never materialized. By the end of May, grain seeding, excluding corn, was completed on a substantially larger area than in the previous 5 years. (See Table 3) Total spring grain seeding, which includes corn, was completed in early June on about 99 million hectares. Allowing for normal abandonment, about 97 million hectares of spring grains will be harvested. (See Table 4)

Table 3

USSR: Progress in Spring Grain Sowing

Million hectares

	Sown Area [1]				Actual Harvested Area [2]
	15 Apr	30 Apr	15 May	30 May	
1972	10	32	54	86	95.7
1973	13	39	58	90	99.8
1974	13	26	54	85	97.3
1975	21	45	59	87	98.7
1976	12	34	60	91	100.3
1977	14	33	59	94	97 est.

[1] Excluding corn; state and collective farms only.

[2] Including corn and all other grains on state and collective farms as well as private holdings and other state enterprises.

Table 4

USSR: Harvested Area

Million hectares

	1973	1974	1975	1976	Estimate 1977
Winter Grain	26.9	29.9	29.2	27.4	32
Spring Grain	99.8	97.3	98.7	100.3	97 [1]
TOTAL	126.7	127.2	127.9	127.7	129

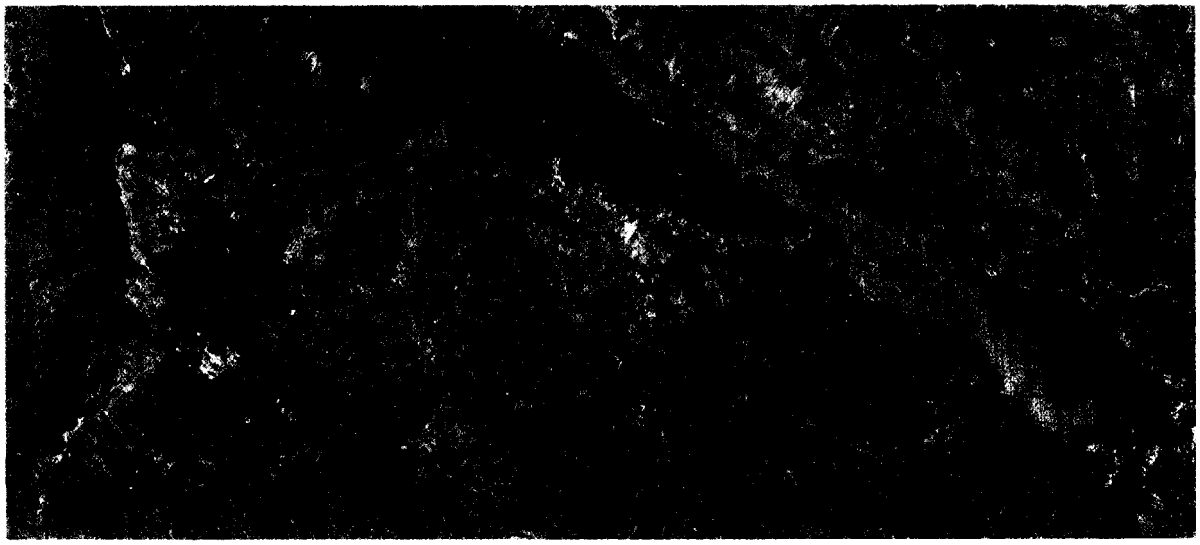
[1] Reflects normal abandonment of about 2 million hectares.

Early spring soil moisture was above normal in most of European USSR with the exception of the Southern Urals and parts of the Volga valley. Although both of the latter areas were dry during optimum seeding in late May, subsequent rainfall significantly improved both soil moisture levels and plant vigor.

During June and early July unusually heavy rains occurred throughout European USSR from the Baltics to the North Caucasus. Apart from some localized flooding in the Ukraine, we expect the overall impact of above normal precipitation on this years crop to be unusually favorable. Yields on both winter and spring grains in the Southern Ukraine adjacent to the Black Sea could be as much as 10 percent above their historical maximum.

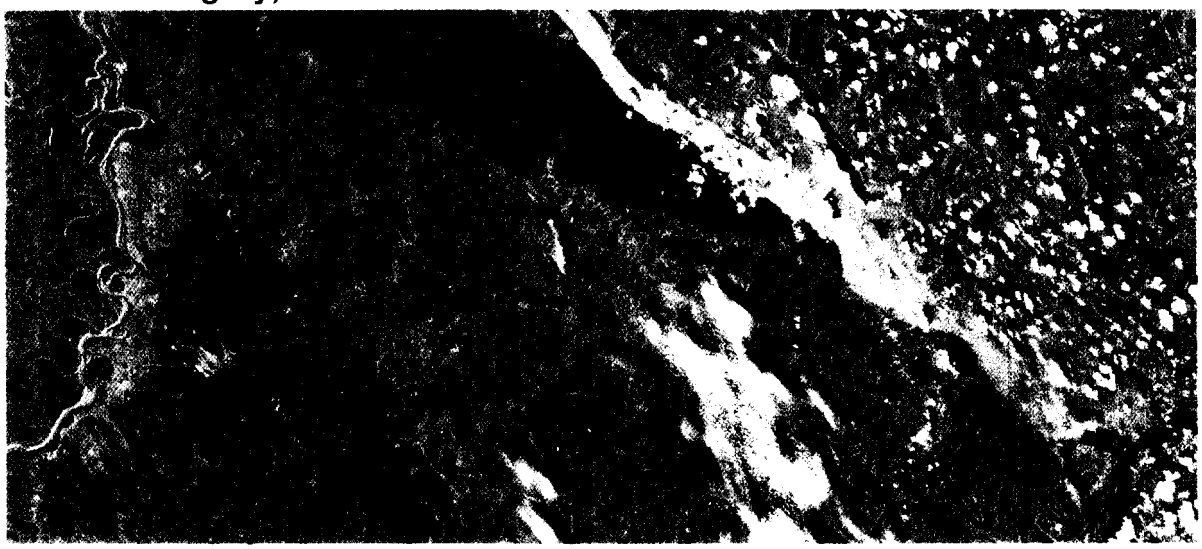
In the spring, soil moisture in northern Kazakhstan and West Siberia was above normal and substantially better than last year. Parts of northern Kazakhstan experienced a reduction in surface soil moisture in early May, but improved markedly as a result of widespread local showers during June. In West Siberia, favorable crop conditions have existed since early spring and show no signs of deteriorating. Infra-red (IR) imagery taken in mid-June depicts excellent plant vigor levels, indicating better than average yield potential. (See Imagery)

Landsat Imagery, Mid-June 1976



Bright infra-red reflectance (IR) in the spring wheat region of West Siberia depicts equally good crop vigor levels for the last two years.

Landsat Imagery, Mid-June 1977



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* Note: Due to methods used in processing red return may be slightly different.

Area of imagery

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